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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,262	12/10/2001	Peder Nafstadius	P170US00	8158
466	7590	09/08/2004	EXAMINER	
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			KAO, CHIH CHENG G	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/009,262

Applicant(s)

NAFSTADIUS, PEDER

Examiner

Chih-Cheng Glen Kao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/22/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Sweden on 6/9/99. It is noted, however, that applicant has not filed a certified copy of the 9902163-6 application as required by 35 U.S.C. 119(b).

Drawings

2. The drawings were received on 7/26/04. These drawings are acceptable.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 25 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a substantially circularly shaped portion (4, 5) with support locations in a parallel direction, does not reasonably provide enablement for a substantially circularly shaped portion (201, 301) in a transverse direction. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

As noted in claim 1, the inner gantry part is rotatably supported by an outer gantry part at two support locations, situated on opposite sides of a treatment volume in a direction parallel to a

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rotation axis. However, the substantially circularly shaped portions, referred to in Figs. 6 and 9 as #201 and 301 as recited in claim 25, are embodied in a device with an inner gantry rotatably supported by an outer gantry part at two support locations, situated on opposite sides of a treatment volume in a direction transverse to a rotation axis. It is uncertain how the substantially circularly shaped portions (201, 301) can be made with two support locations situated on opposite sides of a treatment volume in a direction parallel to a rotation axis. Consequently, this raises doubt as to enablement and has been rejected for these reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-23, 25, 26, 28-30, 37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hug et al. (US Patent 5760402) in view of Townsend et al. ("The SMART scanner: a combined PET/CT tomography for clinical oncology").

5. Regarding claim 21, Hug et al. discloses a device comprising a gantry (Fig. 2), said gantry comprising an inner and outer gantry part (Fig. 2, inner and outer parts of #50), a radiation device (Fig. 2, #10 or 12), mechanically supported by the inner gantry part and rotatable around a rotation axis (col. 1, lines 64-67), wherein all movable parts of the gantry are, in all situations, situated at a distance from the rotation axis larger than a predetermined value (col. 1, lines 64-67,

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and Fig. 2, rings around the central axis), said inner gantry part being rotatably supported by said outer gantry part at two support locations, situated on opposite sides of the treatment volume in a direction parallel to the axis (Fig. 2, supports between the inner and outer parts of #50).

However, Hug et al. does not disclose a radiation head to direct radiation to a treatment volume situated substantially on a rotation axis.

Townsend et al. teaches a radiation head to direct radiation to a treatment volume situated substantially on a rotation axis (Fig. 2, "CT").

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Hug et al. with the radiation head of Townsend et al., since one would be motivated to incorporate this to more accurately acquire aligned functional and anatomical images for any part of the human body (Abstract) as shown by Townsend et al.

6. Regarding claim 22, Hug et al. further discloses the gantry arranged substantially radially with respect to the rotation axis (Fig. 1A and 2, #50).

7. Regarding claim 23, Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not specifically disclose the head continuously rotatable around the rotation axis.

Townsend et al. further teaches the head continuously rotatable around the rotation axis (Page 1171, col. 1, first full paragraph).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the device of Hug et al. with the rotatable head of Townsend et al., since one would be motivated to incorporate this to better scan for data used in 3D reconstruction (Page 1171, col. 2, first full paragraph) as shown by Townsend et al.

8. Regarding claim 25, Hug et al. further discloses a substantially circularly shaped portion around the rotation axis (Fig. 2, inner part of #50).

9. Regarding claim 26, Hug et al. further discloses first and second ring portions (Fig. 2, inner portions of #50) separated in the direction of the rotation axis, said ring portions being carried in first and second support portions of the outer gantry part (Fig. 2, middle and outer portions of #50), respectively.

10. Regarding claim 28, Hug et al. further discloses the inner gantry part comprising a circle arc portion for movable support (Fig. 2, inner part of #50), whereby the center of curvature of the arc portion is in the volume (Fig. 2, center of inner part of #50).

11. Regarding claims 29 and 30, Hug et al. further discloses the inner gantry part comprising a linear beam portion for tiltable support and directing from any position relative to the beam portion (col. 5, lines 16-20).

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12. Regarding claims 37 and 39, Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not specifically disclose a couch elongated in a direction parallel to the rotation axis.

Townsend et al. further teaches a couch elongated in a direction parallel to the rotation axis (Fig. 2, couch).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the device of Hug et al. with the couch of Townsend et al., since one would be motivated to incorporate this to make a patient more comfortable (Fig. 2) as implied from Townsend et al.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hug et al. in view of Townsend et al. as applied to claim 21 above, and further in view of Kelman (US Patent 4115695) and Swerdloff et al. (US Patent 5661773).

Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not disclose a head movable along at least one arc of a circle, substantially centered at a volume, said arc being non-parallel with said rotation of the head around the rotation axis and irradiation treatment.

Kelman teaches a head movable along at least one arc of a circle, substantially centered at a volume, said arc being non-parallel with said rotation of the head around the rotation axis (col. 1, lines 62-66). Swerdloff et al. teaches irradiation treatment (Abstract).

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It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Hug et al. as modified above with the head movable along at least one arc of Kelman, since one would be motivated to incorporate this to simplify the algorithm which the computer executes in connection with image reconstruction (col. 1, lines 62-66) as shown by Kelman.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Hug et al. as modified above with the irradiation treatment of Swerdloff et al., since one would be motivated to incorporate this to better provide therapy (Abstract) as shown by Swerdloff et al.

14. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hug et al. in view of Townsend et al. as applied to claim 26 above, and further in view of Distler et al. (US Patent 4402085).

Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not disclose sliding contacts.

Distler et al. teaches sliding contacts (Abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Hug et al. as modified above with the sliding contacts of Distler et al., since one would be motivated to incorporate these to better provide power to the radiation head without needing oil (col. 1, lines 50-68) as implied from Distler et al.

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15. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hug et al. in view of Townsend et al. as applied to claim 21 above, and further in view of Tam (US Patent 5717732).

Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not disclose numerical control.

Tam teaches numerical control (col. 6, lines 33-34).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Hug et al. as modified above with the numerical control of Tam, since one would be motivated to incorporate this to better provide a means for controlling complex mechanical motion (col. 6, lines 31-40) as implied from Tam.

16. Claims 32, 36, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hug et al. in view of Townsend et al. as applied to claims 21 and 37 above, and further in view of Zylka et al. (US Patent 6490477).

17. Regarding claim 32, Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not disclose a body supporting couch comprising two support portions.

Zylka et al. teaches a body supporting couch (Fig. 3, #7) comprising two support portions (Fig. 3, portion under #7).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Hug et al. as modified above with couch of Zylka et

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al., since one would be motivated to incorporate this for more maneuverability of the volume (Fig. 3) as implied from Zylka et al.

18. Regarding claim 36, Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not disclose the couch within a distance of said predetermined value from said rotation axis.

Zylka et al. further teaches the couch within a distance of said predetermined value from said rotation axis (Fig. 1, #7).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the device of Hug et al. as modified above with the couch of Zylka et al., since one would be motivated to incorporate this for more easily placing the volume on the couch (Fig. 3) as implied from Zylka et al.

19. Regarding claim 38, Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not disclose the couch below the axis.

Zylka et al. further teaches the couch below the axis (Fig. 3, #7).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the device of Hug et al. as modified above with the couch of Zylka et al., since one would be motivated to incorporate this for more easily placing a volume on the couch (Fig. 3) as implied from Zylka et al.

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20. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hug et al. in view of Townsend et al. and Zylka et al. as applied to claim 32 above, and further in view of Mansfield et al. (US Patent 5778047).

Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not disclose a couch with two rigid parts attached to support portions and interconnected by material with a low radiation cross section.

Mansfield et al. teaches a couch with two rigid parts (Fig. 5, ends of #10) interconnected by material with a low radiation cross-section (Abstract, last 5 lines).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Hug et al. as modified above with the couch of Mansfield et al., since one would be motivated to have such a couch to allow radiation to directly hit the patient (Fig. 5) as shown by Mansfield et al. for preventing radiation degradation to the patient.

It also would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the device of Hug et al. as modified above with rigid parts attached to support portions, since rearrangement of parts only involves routine skill in the art. One would be motivated to have such an arrangement to provide support to the couch when a patient is on it.

21. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hug et al. in view of Townsend et al., Zylka et al., and Mansfield et al. as applied to claim 33 above, and further in view of Ramsdell et al. (US Patent 5717735).

Hug et al. as modified above suggests a device as recited above.

However, Hug et al. does not disclose a support portion independently movable (Fig. 3, support portion for #7 closer to #1) and support portions movable in two translational directions.

Zylka et al. further teaches a support portion independently movable (Fig. 3, support portion for #7 closer to #1). Ramsdell et al. teaches support portions movable in two translational directions (Fig. 2, "X", "Y", and "Z").

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the device of Hug et al. as modified above with the supports of Zylka et al., since one would be motivated to incorporate this for more maneuverability of the volume (Fig. 3) as implied from Zylka et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Hug et al. as modified above with the support portions of Ramsdell et al., since one would be motivated to incorporate these for less structural stress compared to moving a heavy head instead (col. 7, lines 28-30) as implied from Ramsdell et al.

Response to Arguments

22. Applicant's arguments with respect to claims 21-39 have been considered but are moot in view of the new ground(s) of rejection.

Zylka et al. still applies for its teachings with regards to the couch as recited above

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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